

TMDLs for Sediment Toxicity and Pyrethroid Pesticides in Sediment in the Lower Salinas River Watershed

Agenda Item
Number 18
May 13, 2016

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Central Coast Water Board TMDL Program

Presentation Outline

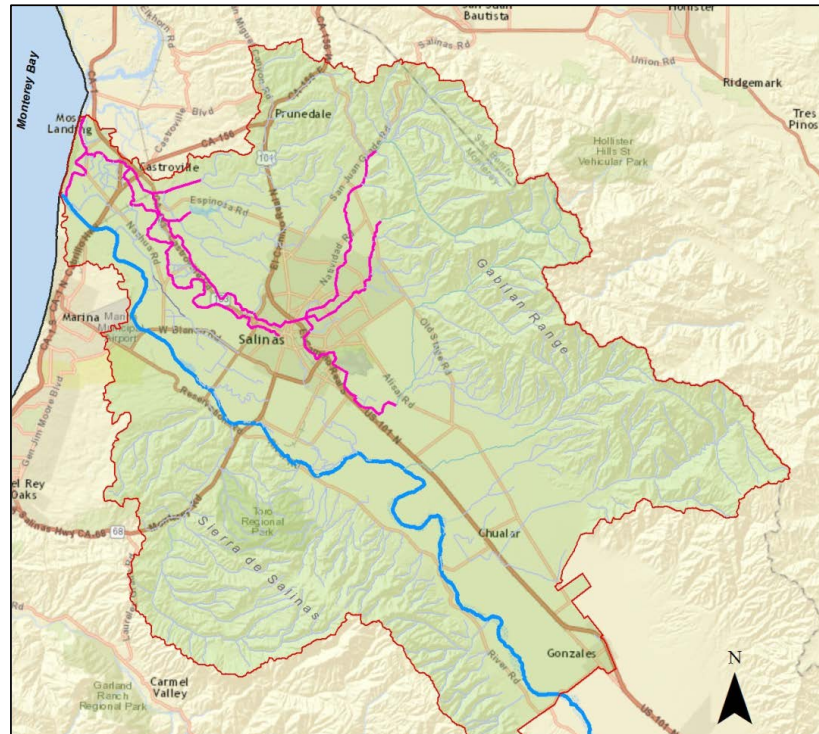
- Background
- Impaired waters
- Source analysis
- Targets, TMDLs, and allocations
- Implementation and monitoring
- Public process
- Request approval

Background Information

- General overview of TMDLs

- Santa Maria River watershed TMDLs for toxicity and pesticides
 - Impairments
 - Targets
 - TMDLs
 - Implementation
 - Monitoring
 - Public outreach

Project Area



Basis of Impairments

- Impaired Water: *A waterbody not meeting water quality standards or may be threatened in the future...*
- Toxicity: *All waters shall be maintained free of toxic substances in concentrations which are toxic to, or which produce detrimental physiological responses in, human, plant, animal, or aquatic life.*
- Pesticides: *No individual pesticide or combination of pesticides shall reach concentrations that adversely affect beneficial uses.*

Sediment Toxicity Impairment

- Sediment toxicity test - *Hyalella azteca*



Sediment Toxicity Impaired Waters

- Alisal Creek (2/3)
- Alisal Slough (3/9)
- Blanco Drain (2/9)
- Chualar Creek (5/9)
- Espinosa Slough (8/8)
- Gabilan Creek (6/7)
- Merrit Ditch (7/8)
- Natividad Creek (11/11)
- Old Salinas River (10/11)
- Quail Creek (11/11)
- Reclamation Canal (23/25)
- Salinas River (Lower) (3/26)
- Tembladero Slough (20/22)
- **Total (111/159), 2004-2013**

Pyrethroid Impaired Waters

- ▣ Alisal Creek
- ▣ Reclamation Canal
- ▣ Natividad Creek
- ▣ Salinas River (lower)
- ▣ Tembladero Slough.

Pyrethroid Studies

- Salinas River Watershed Studies
 - Department of Pesticide Regulation, 2006
 - Weston, 2008
 - Central Coast Water Quality Preservation Inc., 2010

- Statewide urban studies
 - Department of Pesticide Regulation, 2008-2011
 - Calif. Stormwater Quality Association, 2003-2012

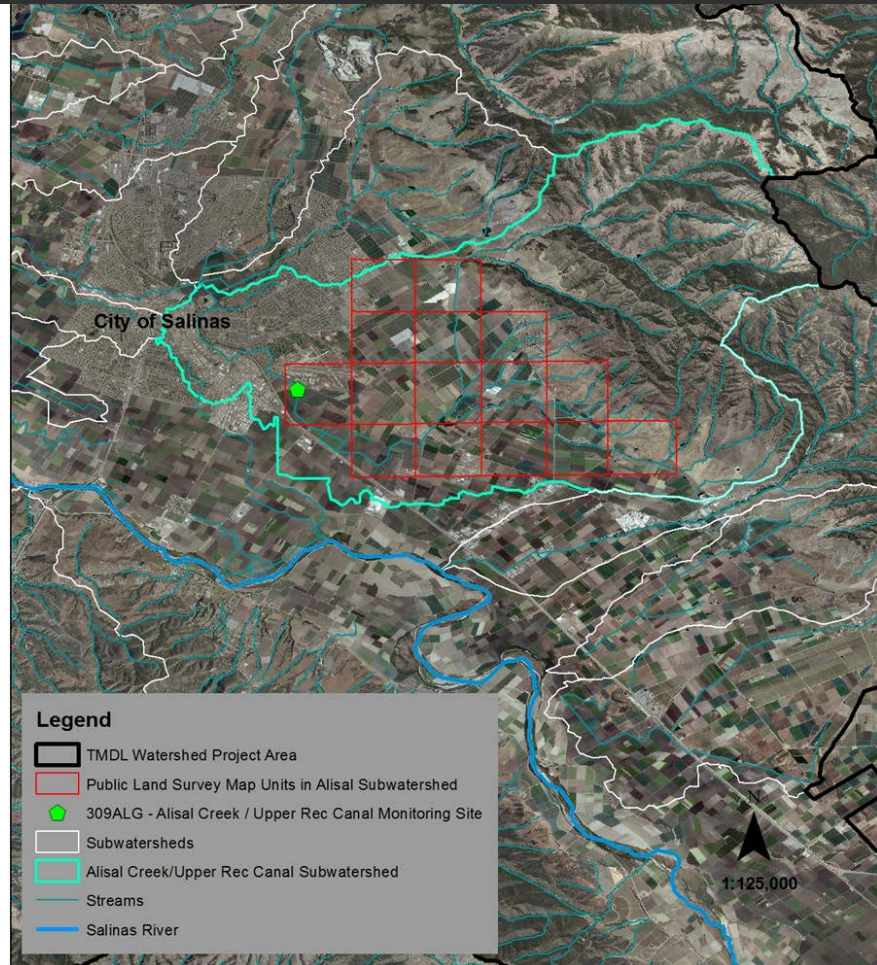
Sources of Pyrethroids



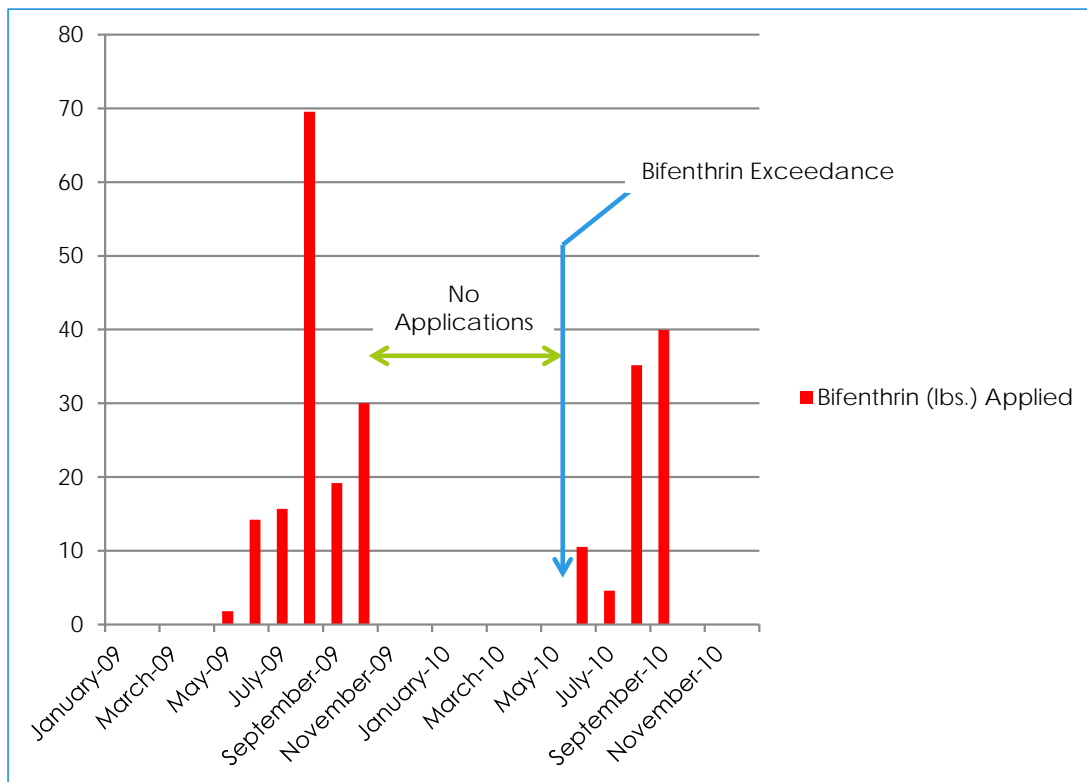
Alisal Creek Subwatershed

Pyrethroid Toxicity Units (TUs) (May 2010)

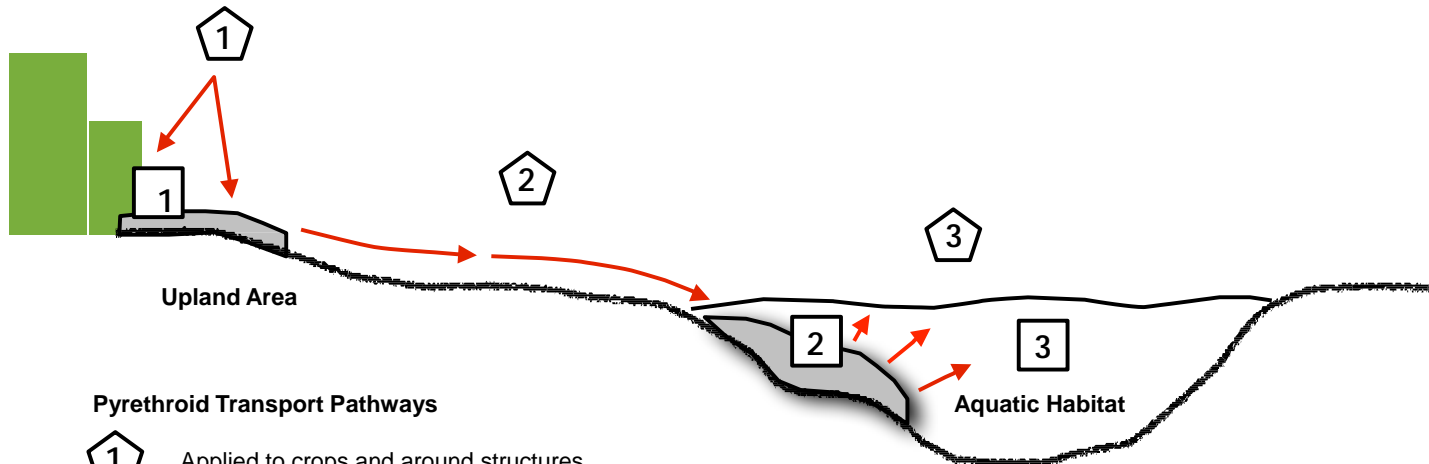
- Bifenthrin (1.79 TUs)
strawberries
- Cypermethrin (1.84 TUs)
lettuce
- Esfenvalerate/Fenvalerate (1.84 TUs) lettuce, broccoli and cauliflower
- Lambda-cyhalothrin (2.22 TUs) - lettuce



Pyrethroid Persistence



Pyrethroid Sources and Pathways



Pyrethroid Transport Pathways

- 1** Applied to crops and around structures
- 2** Attached to sediment and organic particles in runoff and deposited in streams
- 3** Partitioned between sediments, organic matter, and water

Pyrethroids in the Environment

- 1** Soils and surfaces around structures and cropland
- 2** Deposited in sediment
- 3** In water

Targets

- Translation of narrative WQO

- Targets for sediment toxicity and pyrethroids

Sediment Toxicity Target

- **Water Quality Objective:** *All waters shall be maintained free of toxic substances in concentrations which are toxic to, or which produce detrimental physiological responses in, human, plant, animal, or aquatic life.*
- **Numeric Target:** Sediment toxicity test - *Hyalella azteca*, % survival



Pyrethroid Pesticide Targets

- **Water Quality Objective:** *No individual pesticide or combination of pesticides shall reach concentrations that adversely affect beneficial uses. There shall be no increase in pesticide concentrations found in bottom sediments or aquatic life.*
- **Numeric Targets:** Numeric Targets for Concentrations in Water
- **Numeric Targets:** Pyrethroid Sediment Toxicity Unit Targets

TMDLs and Allocations

TMDLS

- ▣ Sediment Toxicity TMDL
- ▣ Pyrethroids in Sediment TMDL

Allocations

- ▣ **Municipalities** = Sediment Toxicity and Pyrethroid in Sediment TMDLs
- ▣ **Irrigated Agriculture** = Sediment Toxicity and Pyrethroid in Sediment TMDLs

TMDL Implementation

- Interagency approach with Department of Pesticide Regulation
- Municipal stormwater permits
- Agricultural Order

Interagency Implementation with Department of Pesticide Regulation

- Management Agency Agreement
- California Pesticide Management Plan for Water Quality
- Response process
- Department of Pesticide Regulation notification and response letter

Municipal Stormwater Implementation

- City of Salinas and County of Monterey
 - Wasteload Allocation Attainment Plan (required by municipal stormwater permit)

- Department of Pesticide Regulation urban surface water protection regulations

Irrigated Agricultural Implementation

- Agricultural Order
 - Farm Plan
 - Implement management practices
 - Annual Compliance Form
- Voluntary Action Recommendations
- USEPA pyrethroid label requirements
 - Conservation buffers

TMDL Water Quality Monitoring Plan

- City of Salinas stormwater
- Agricultural Order
- Surface Water Ambient Monitoring Program (SWAMP) - Stream Pollution Trends Monitoring Program (SPoT)
- Central Coast Ambient Monitoring Program(CCAMP)
- Department of Pesticide Regulation

Time Schedule and Milestones

- Current – implementation of DPR urban regulations
- 3 years – development of agricultural pyrethroid implementation program
- 5 years – municipal allocations achieved to meet TMDLs
- 10 years - agricultural allocations achieved to meet TMDLs
- 15 years – targets achieved in receiving waters as indicators of meeting TMDLs

Public Outreach

- Kick-off meeting – January 2015
- CEQA scoping meeting – March 2015
- Grower-Shipper Association – April 2015
- Public Meeting - December 2015
- Start 45 day Public Comment Period – January 20, 2016
- UC Cooperative Extension Workshop – March 2016

Public Comments & Staff Responses

1. UC Davis criteria
2. Monitoring
3. Implementation
4. The importance of pyrethroids

Minor Edit

Item No. 18 Attachment 1

Resolution R3-2016-0003 and Basin Plan Amendment

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(Attachment A to Resolution No. R3-2016-0003, Top -Page 5)

Existing Language:

- Allocation-1: Sediment Toxicity TMDLs
- Allocation-2: Pyrethroids in Sediment TMDLs

Modified Language

- Allocation-1: Equal to Sediment Toxicity TMDLs
- Allocation-2: Equal to Pyrethroids in Sediment TMDLs

Staff Recommendation

Adopt Resolution No. R3-2016-0003 as proposed (including USEPA's edit) to approve the Total Maximum Daily Loads for Sediment Toxicity and Pyrethroids in Sediment in the Lower Salinas River Watershed.